

**Environmental Assessment (EA):
Proposed 2-Million Gallon Reservoir
(Roy City Corporation),
Hill Air Force Base, Utah**

Under an Agreement for Environmental Consulting Services

**Roy City Corporation
5460 South 2700 West
Roy UT 84067**

November, 2000

Prepared in accordance with the Department of the Air Force Environmental Impact Analysis Process (EIAP) 32 CFR Part 989, Effective July 6, 1999, which implements the National Environmental Policy Act (NEPA), the President's Council on Environmental Quality (CEQ) regulations.

FINDING OF NO SIGNIFICANT IMPACT

1. **NAME OF ACTION:** Construct a 2,000,000 gallon reservoir and a small pump house (to serve the City of Roy) in the northwestern portion of Hill Air Force Base (AFB), Utah.

2. **DESCRIPTION OF THE PROPOSED ACTION:** Hill AFB proposes to grant an easement in the northwest portion of the base, on which Roy City Corporation would construct a 2,000,000 gallon reservoir and a small pump house. These facilities would store culinary water such that sufficient water is provided to current and future residents of the city of Roy. As population increases and culinary water usage continues to rise, additional water system capacity will be required to meet the increasing demand.

The proposed action includes all work necessary to construct, on Hill AFB, a 2,000,000 gallon concrete culinary water reservoir and a small pump house, to be owned and operated by Roy City Corporation. Hill AFB would grant an easement for the proposed action of approximately 1.3 acres on Air Force property. Roy City Corporation would restore all impacted surfaces to their original condition.

The reservoir would be constructed of cast in place concrete. It would be approximately 130 feet in diameter, 20 feet tall, and its floor would be approximately 13 feet below ground surface. An earthen berm would be constructed around the reservoir to protect the water from freezing in cold weather. The small pump house would be sited to the north of the proposed reservoir.

3. **SELECTION CRITERIA:** The following criteria were used to assemble alternatives. The alternative should:

- store 3,250,000 gallons of culinary water (2,000,000 gallons added to the current 1,250,000 gallons) as per recommendations of the city's water master plan; and
- be protective of facilities, human health, and the environment.

4. **ALTERNATIVES CONSIDERED OTHER THAN THE PROPOSED ACTION:**

Alternative B includes all work necessary to construct the reservoir and a small pump house without using Hill AFB property. No easement would be required on Hill AFB, and the Air Force would not participate in the action. The city would obtain land or easements from other entities for the alternate site. The city has provided information explaining that the proposed location was selected because it is the only available location with sufficient elevation to provide water for Roy's upper water zone by gravity feed.

Under the no action alternative, the capacity of Roy City Corporation to provide culinary water in its upper zone would remain at the current storage volume, which is less than the projected storage requirements. It is not known whether other means of providing water to these customers could be identified, if community growth would be limited, or if water shortages would occur.

5. SUMMARY OF ANTICIPATED ENVIRONMENTAL EFFECTS:

a. Proposed Action: This alternative fully satisfies all applicable regulations and provides for accomplishment of mission objectives without impacts to human health or the environment. The proposed action could be implemented with minor short-term environmental impacts such as air emissions during construction activities. Following the construction phase, revegetation of portions of the site to prevent erosion may improve those parts of the site, if planted with a diverse mix of native species. No long-term environmental impacts are expected.

b. Alternative B: Because Roy City Corporation could not identify any other available locations at the required elevation, Alternative B was eliminated from detailed consideration.

c. No Action Alternative: There are no environmental impacts associated with the no action alternative. The capacity of Roy City Corporation to provide culinary water in its upper zone would remain at the current storage volume, which is less than the projected storage requirements. It is not known whether other means of providing water to these customers could be identified, if community growth would be limited, or if water shortages would occur.

6. FINDING OF NO SIGNIFICANT IMPACT: Based on the above considerations, a Finding of No Significant Impact (FONSI) is appropriate for this assessment.

Approved by:

Environmental Protection
Committee Chairman

Date: _____

EXECUTIVE SUMMARY

Purpose and Need

Roy City Corporation supplies drinking water to residents, commercial enterprises, and public agencies in the City of Roy, Utah. As population increases and culinary water usage continues to rise, additional water system capacity will be required to meet the increasing demand.

Roy City Corporation is requesting an easement of approximately 1.3 acres within the northwestern portion of Hill AFB on which to construct a 2,000,000 gallon culinary water reservoir and a small pump house. The purpose of the proposed action is to enable the city to provide current and future residents of Roy City with culinary water.

The proposed action is needed because existing water storage volume will not meet projected future demand. Current water storage at this site consists of 2 reservoirs (1,000,000 gallons and 250,000 gallons). A recent culinary water master plan (Jones 97) indicated the need for the additional 2,000,000 gallon reservoir. To provide adequate water for fire fighting requirements in accordance with the 1994 *Uniform Fire Code*, the document recommended 4.0 million gallons of new storage in two reservoirs of 2 million gallons each. The proposed action would provide 1 of these 2 needed reservoirs. The proposed location was selected because it is the only available location with sufficient elevation to provide water for Roy's upper water zone by gravity feed.

Scope of Review

No cultural and/or historical resources were identified within the area of the proposed action on Hill AFB property. No species of plants or animals listed as endangered, threatened, or sensitive by state or federal agencies were observed in or around the proposed excavation area, and no suitable habitat for any such species is likely to be disturbed by the project. No hazardous waste is expected to be generated by the project, but accidental spills of fuel, lubricants, or construction-related chemicals could occur.

The issues that were identified and analyzed in the document are: air quality, solid and hazardous wastes, physical environment (surface soils, groundwater), and biological resources. Environmental effects of the no action alternative were also considered.

Selection Criteria

The future configuration of the upper zone water supply should store 3,250,000 gallons of culinary water (2,000,000 gallons added to the current 1,250,000 gallons) as per recommendations of the city's water master plan; and be protective of facilities, human health, and the environment.

Proposed Action and Alternatives

Proposed Action - The proposed action includes a 2,000,000 gallon concrete culinary water reservoir and a small pump house, to be owned and operated by Roy City Corporation. Hill AFB would grant an easement for the proposed action of approximately 1.3 acres on Air Force property. Roy City Corporation would restore all impacted surfaces to their original condition.

The proposed reservoir would be constructed of cast in place concrete. It would be approximately 130 feet in diameter, 20 feet tall, and its floor would be approximately 13 feet below ground surface. An earthen berm would be constructed around the reservoir to protect the water from freezing in cold weather. The small pump house would be sited to the north of the proposed reservoir.

Alternative B – Alternative B includes all work necessary to construct the reservoir and small pump house without using Hill AFB property. No easement would be required on Hill AFB, and the Air Force would not participate in the action. The city would obtain land or easements from other entities for the alternate site.

The city has provided information explaining that the proposed location was selected because it is the only available location with sufficient elevation to provide water for Roy's upper water zone by gravity feed.

No Action Alternative – Under the no action alternative, the capacity of Roy City Corporation to provide culinary water in its upper zone would remain at the current storage volume, which is less than the projected storage requirements. It is not known whether other means of providing water to these customers could be identified, if community growth would be limited, or if water shortages would occur.

Results of the Environmental Assessment

The proposed action and the no action alternative were considered in detail. Roy City managers explained that the proposed location was selected because it is the only available location with sufficient elevation to provide water for Roy's upper water zone by gravity feed. The alternative to construct the reservoir and small pump house elsewhere was therefore eliminated from detailed consideration.

The proposed action could be implemented with minor short-term environmental impacts such as air emissions during construction activities. Following the construction phase, revegetation of portions of the site to prevent erosion may improve those parts of the site, if planted with a diverse mix of native species. No long-term environmental impacts are expected.

There are no environmental impacts associated with the no action alternative. With no increase in storage, it is not known whether other means of providing water to upper zone customers could be identified, if community growth would be limited, or if water shortages would occur.

COMPARISON OF ALTERNATIVES

Issue	<u>Proposed Action</u> Construct the Reservoir and Pump House on Hill AFB	<u>No Action Alternative</u> Do Not Construct the Reservoir and Pump House
Air Quality	Construction-related temporary emissions.	No impact.
Solid and Hazardous Wastes	Would not be generated. No impact (accidental spills to be remediated).	No impact.
Surface Soils	Construction-related erosion control measures may be required.	No impact.
Groundwater	No impact.	No impact.
Biological Resources	Revegetation with native species may improve conditions at the site.	No impact.

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LIST OF ACRONYMS AND CHEMICAL TERMS

AFB	Air Force Base
bgs	Below Ground Surface
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DAQ	Utah Division of Air Quality
DWQ	Utah Division of Water Quality
EPA	United States Environmental Protection Agency
FONSI	Finding of No Significant Impact
gpm	gallons per minute
NAAQS	National Ambient Air Quality Standards
NO _x	Oxides of Nitrogen
O ₃	Ozone
PCB	Polychlorinated Biphenyl
PM-10	Particulates Smaller Than 10 Microns in Diameter
RCRA	Resource Conservation and Recovery Act
SO _x	Oxides of Sulfur
UAC	Utah Administrative Code
UST	Underground Storage Tank
VOC	Volatile Organic Compound

1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 Introduction

Roy City Corporation supplies drinking water to residents, commercial enterprises, and public agencies in the City of Roy, Utah. As population increases and culinary water usage continues to rise, additional water system capacity will be required to meet the increasing demand.

The district currently owns 1 acre of land best described as an inholding within the boundaries of Hill Air Force Base (AFB). On this property, there are two existing water storage tanks (reservoirs) totaling 1,250,000 gallons of water storage, and a well that withdraws water from the Sunset Formation. Roy City Corporation plans to increase water storage to accommodate its growing population and growing demand for culinary water. The projected design criterion for Roy's upper water zone (adjacent to Hill AFB) related to the proposed action is: an additional 2,000,000 gallons of storage.

New facilities are required to satisfy this design criterion. Roy City managers and their consulting engineers have investigated siting options for proposed new facilities. Because of a lack of candidate sites within the city, Roy City Corporation has requested an easement for 1.3 acres on Hill AFB (adjacent to the 1 acre Roy City inholding) on which to construct a new reservoir and a small pump house. An existing water main would deliver the stored water to Roy residents.

1.2 Purpose and Need

Roy City Corporation is requesting an easement of approximately 1.3 acres within the northwestern portion of Hill AFB on which to construct a 2,000,000 gallon culinary water reservoir and a small pump house. The purpose of the proposed action is to enable the city to provide current and future residents of Roy City with culinary water.

The proposed action is needed because existing water storage volume will not meet projected future demand. Current water storage at this site consists of 2 reservoirs (1,000,000 gallons and 250,000 gallons). A recent culinary water master plan (Jones 97) indicated the need for the additional 2,000,000 gallon reservoir. To provide adequate water for fire fighting requirements in accordance with the 1994 *Uniform Fire Code*, the document recommended 4.0 million gallons of new storage in two reservoirs of 2 million gallons each. The proposed action would provide 1 of these 2 needed reservoirs. The proposed location was selected because it is the only available location with sufficient elevation to provide water for Roy's upper water zone (an area with approximately 10,000 residents, plus commercial users) by gravity feed (personal communication, Mike Mansfield).

1.3 Location of the Proposed Action

Hill AFB is located approximately twenty five miles north of downtown Salt Lake City and 7 miles south of downtown Ogden, Utah (Figure 1). Hill AFB is surrounded by several communities: Roy and Riverdale to the north; South Weber to the northeast; Layton to the south; and Clearfield, Sunset, and Clinton to the west. The base lies primarily in northern Davis County with a small portion located in southern Weber County.

The proposed reservoir is located in the extreme northwestern portion of the base (Figure 2), just inside the base property on the east side of Interstate Highway 15. Hill AFB land use in the vicinity of the proposed reservoir (Figure 3) consists of open grassy areas and roadways. Immediately east of the proposed action lies Roy City Corporation's 1 acre inholding, upon which the 2 existing reservoirs and well are located.

1.4 Scope of the Environmental Review and Anticipated Environmental Issues

The scope of this environmental review is to analyze environmental concerns related to the proposed construction on Hill AFB of a 2,000,000 gallon culinary water reservoir and a small pump house, both to be owned and operated by Roy City Corporation. No utilities would be required or impacted. No wastewater or hazardous wastes are expected to be generated. Solid wastes may be generated, and hazardous wastes could be generated if a spill of fuel, lubricants, or construction-related chemicals occurs during construction activities.

An inspection of the ground surface was conducted to identify any cultural and/or historical resources within the boundaries of the proposed action on Hill AFB property. No resources were identified (personal communication, Ms. Wanda Burns).

No species of plants or animals listed as endangered, threatened, or sensitive by state or federal agencies were observed in or around the proposed excavation area, and no suitable habitat for any such species is likely to be disturbed by the project.

Hill AFB conducts groundwater monitoring of the shallow, unconfined aquifer near the proposed action. Contamination has not been detected in the nearby wells. The measured depth to groundwater near the proposed action is approximately 70 feet below ground surface (bgs) (personal communication, Mr. Mark Loucks).

The issues that have been identified for detailed consideration and therefore presented in Sections 3 and 4 are: air quality, solid and hazardous wastes, physical environment (surface soils, groundwater), and biological resources. Environmental effects of the no action alternative were also considered.

1.5 Applicable Regulations and Permits

Throughout the project, city personnel and their contractors would follow safety guidelines of the Occupational Safety and Health Administration as presented in the *Code of Federal Regulations* (CFR) for trenching, 29 CFR 1926 Subpart P.

Air emissions generated by construction activities must be addressed in accordance with Utah's State Implementation Plan, which complies with the Clean Air Act's General Conformity Rule, Section 176 (c). A conformity analysis was conducted for this proposed action as specified by "*Determining Conformity of Federal Actions to State or Federal Implementation Plans*," 40 CFR 93, revised July 1, 1998 (see Sections 3.1 and 4.1 of this document). The contractor would be required to have a water truck on site as needed during especially dry and windy weather for the purpose of dust suppression.

Hill AFB would require two weeks' notice prior to any construction activities resulting from the proposed action or other selected on-base alternative. Hill AFB would provide an archaeologist to observe the excavation for unearthing of any cultural and/or historical resources. If any resources were to be identified, construction would be required to proceed in such a fashion that adverse affects to those resources were mitigated. Hill AFB would also provide utility clearance prior to excavation activities.

The requirements of the Utah Water Quality Act (consistent with the federal Clean Water Act) related to construction impacts to surface waters are incorporated into section R317-8 of the *Utah Administrative Code* (UAC). Construction dewatering projects require review from Utah's Division of Water Quality (DWQ). Since the proposed projects will not disturb an aggregate of 5 acres or more or require dewatering, a construction stormwater permit from DWQ will not be required.

The proposed action is not expected to generate any wastes that are regulated by the Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act, or similar law. Hazardous wastes at Hill AFB are routinely and properly handled in accordance with RCRA regulations, Utah hazardous waste management regulations contained in the UAC Section R315-1, and the *Hill AFB Hazardous Waste Management Plan*. These regulations control hazardous waste from its origin and storage to ultimate treatment, and/or disposal. In Utah, the above regulations are enforced by the Utah Division of Solid and Hazardous Waste.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This section describes selection criteria, the proposed action, a second alternative, and the no action alternative.

2.1 Selection Criteria

As discussed in Section 1.1, Roy City Corporation supplies drinking water to residents, commercial enterprises, and public agencies in the City of Roy, Utah. The city wishes to increase water storage to accommodate its growing population and growing demand for culinary water. The projected design criterion for Roy's upper water zone is: create an additional 2,000,000 gallons of storage (above the current 1,250,000 gallons). Due to these considerations, the following selection criteria were established. The future configuration of the upper zone water supply should:

- store 3,250,000 gallons of culinary water as per recommendations of the city's water master plan (Jones 97); and
- be protective of facilities, human health, and the environment.

2.2 Proposed Action: Construct the Reservoir and Pump House on Hill AFB

The proposed action includes all work necessary to construct, on Hill AFB, a 2,000,000 gallon concrete culinary water reservoir and a small pump house. Hill AFB would grant an easement for the proposed action of approximately 1.3 acres on Air Force property. Roy City Corporation would restore all impacted surfaces to their original condition.

The reservoir would be constructed of cast in place concrete. It would be approximately 130 feet in diameter, 20 feet tall, and its floor would be approximately 13 feet bgs. The maximum depth of the excavation would be approximately 15 feet bgs. An earthen berm would be constructed around the reservoir to protect the water from freezing in cold weather. While open, the sides of the excavation would be sloped at 1.5 horizontal to 1.0 vertical or other such angle as approved by the design and geotechnical engineering contractors. The small pump house would be sited to the north of the proposed reservoir. The total amount of land contained within the easement would be 1.3 acres.

The environmental impacts of the proposed action are summarized in Section 2.5 of this document, and are discussed at greater length in Section 4 of this document.

2.3 Construct the Reservoir and Pump House Elsewhere (Alternative B)

Alternative B includes all work necessary to construct the reservoir and a small pump house without using Hill AFB property. No easement would be required on Hill AFB,

and the Air Force would not participate in the action. The city would obtain land or easements from other entities for the alternate site.

The city has provided information explaining that the proposed location was selected because it is the only available location with sufficient elevation to provide water for Roy's upper water zone by gravity feed (personal communication, Mike Mansfield).

Because the city could not identify any other location meeting its own siting criterion, Alternative B was eliminated from detailed consideration.

2.4 No Action Alternative: Do Not Construct the Reservoir and Pump House

Under the no action alternative, the capacity of Roy City Corporation to provide culinary water in its upper zone would remain at the current storage volume, which is less than the projected storage requirements. It is not known whether other means of providing water to these customers could be identified, if community growth would be limited, or if water shortages would occur.

The environmental impacts of the no action alternative are summarized in Section 2.5 of this document, and are discussed at greater length in Section 4 of this document.

2.5 Comparison of the Alternatives Considered in Detail

The proposed action and the no action alternative were considered in detail. The proposed action could be implemented with minor short-term environmental impacts such as air emissions during construction activities, and mitigating impacts to nesting birds. No long-term environmental impacts are expected.

The no action alternative does not meet the selection criterion to store 3,250,000 gallons of culinary water. However, the framework of an environmental assessment requires that the no action alternative must be considered even if it does not meet all of the selection criteria. The no action alternative would not provide sufficient water to the customers of Roy City Corporation. It is not known whether other means of providing water to these customers could be identified, if community growth would be limited, or if water shortages would occur.

TABLE 1. SUMMARY COMPARISON OF ALTERNATIVES

Issue	<u>Proposed Action</u> Construct the Reservoir and Pump House on Hill AFB	<u>No Action Alternative</u> Do Not Construct the Reservoir and Pump House
Air Quality	Construction-related temporary emissions.	No impact.
Solid and Hazardous Wastes	Would not be generated. No impact (accidental spills to be remediated).	No impact.
Surface Soils	Construction-related erosion control measures may be required.	No impact.
Groundwater	No impact.	No impact.
Biological Resources	Revegetation with native species may improve conditions at the site.	No impact.

3.0 EXISTING ENVIRONMENT

3.1 Air Quality

Hill AFB is located in Davis and Weber Counties, Utah. Neither county is in complete attainment status with federal clean air standards (Figure 4). Nonattainment areas fail to meet national ambient air quality standards (NAAQS) for one or more of the criteria pollutants: oxides of nitrogen (NO_x), sulfur dioxide (SO₂), ozone (O₃), particulates less than 10 microns in diameter (PM-10), carbon monoxide (CO), and lead. Davis County has been upgraded from an ozone non-attainment area to a maintenance area, effective May of 1999. Also as of May, 1999, the City of Ogden in Weber County (approximately 7 miles north of the proposed action) is designated as a non-attainment area for both PM-10 and CO.

The current air quality trend at Hill AFB is one of decreasing emissions as Hill AFB managers implement programs to eliminate ozone-depleting substances, limit use of volatile organic compounds (VOCs), install VOC emission control equipment for painting operations, switch to lower vapor pressure solvents and aircraft fuel, convert internal combustion engines from gasoline and diesel to natural gas, and improve the capture of particulates during painting and abrasive blasting operations.

3.2 Solid and Hazardous Wastes

In general, hazardous wastes include substances that, because of their concentration, physical, chemical, or other characteristics, may present substantial danger to public health or welfare or to the environment when released into the environment or otherwise improperly managed. Hazardous wastes generated at Hill AFB are managed as specified in the *Hill AFB Hazardous Waste Management Plan* with oversight by personnel from the Environmental Management Directorate and the Defense Reutilization and Marketing Office. Hazardous wastes at Hill AFB are properly stored during characterization, and then manifested and transported off site for treatment and/or disposal.

There are no solid or hazardous wastes currently being generated by the existing reservoir and well facilities. There are no known sources of RCRA contamination or polychlorinated biphenyls (PCBs) in the area (electronic mail, Mr. Lynn Hill). There are no known sources of underground storage tank (UST) contamination in the area (electronic mail, Dr. Dan Stone). There is no known contamination in the area that would be addressed by the Hill AFB installation restoration program (electronic mail, Mr. Shane Hirschi; personal communication, Mr. Mark Loucks).

3.3 Physical Environment

3.3.1 Surface Soils

The surface soils in the vicinity of the proposed reservoir and small pump house are relatively flat to moderately sloping (in a westerly direction), are sustaining a poor to moderate crop of grasses and other vegetation, and are not eroding.

3.3.2 Groundwater

Groundwater flow in the immediate area is toward the west, following the topographic slope toward the Great Salt Lake. At the site of the proposed action, depth to groundwater is approximately 70 feet bgs. The Hill AFB installation restoration program has investigated water quality in the shallow, unconfined aquifer by installing and sampling neighboring monitoring wells. No groundwater contamination has been identified in the vicinity of the proposed action (personal communication, Mr. Mark Loucks).

The Sunset Formation, from which water is being withdrawn, is an aquifer with good water quality.

3.4 Biological Resources

In much of the proposed project site, the vegetation is heavily impacted by past and continuing human activities. Approximately 30% of the project site is non-vegetated soil due to human disturbance; another 5% is naturally occurring bare ground. Weedy, non-native plants cover approximately 16% of the area, including plants such as cheatgrass (10%), tumble mustard (2%), field wormwood (2%), pigweed (1%), and puncture vine (1%). Native plants cover about 49% of the area, and include species such as rubber rabbitbrush (20%), clover (10%), bentgrass (10%), goldenrod (5%), snakeweed (2%), curly-cup gumweed (1%), and green rabbitbrush (<1%).

Overall, the condition of the vegetation in the undisturbed portion of the area is fair to poor, with over 30% of the vegetative cover consisting of non-native plants.

The proposed project site and its immediate surroundings are too small in area to provide significant habitat either for most birds or any mammals larger than small rodents (not observed). A few bird species, primarily sparrows, meadowlarks (observed), and finches (observed) probably feed in the area periodically. Some of the bare-ground areas would provide suitable nesting sites for Killdeer, though none was observed during the site visit.

No species of plants or animals listed as endangered, threatened, or sensitive by state or federal agencies were observed in or around the proposed project site.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Air Quality

4.1.1 Impacts of the Proposed Action

No air emissions would be produced by operating the proposed culinary water facilities. The only air quality impacts of the proposed action would be related to generation of PM-10 during excavation, backfill, and general construction operations, and construction equipment emissions during the same time period.

Emissions of PM-10 would be produced as soil is disturbed during proposed construction activities. The US Environmental Protection Agency (EPA) has estimated that fugitive dust emissions from construction activities produce 0.11 tons of PM-10 per acre per month (EPA 96). The proposed action would involve approximately 2 weeks of excavation and backfill activities for the 1.3 acres being disturbed during construction of the reservoir and small pump house. Fugitive dust emissions of 0.07 tons of PM-10 were therefore calculated for the proposed action. To mitigate emissions of fugitive dust, the city's contractor would be required to have a water truck on site as needed during dry and windy weather for the purpose of dust suppression and reducing the emissions of PM-10.

The internal combustion engines of heavy equipment would also generate emissions of PM-10, VOCs, NO_x, and CO. Assumptions and estimated emissions are listed in Table 2.

TABLE 2. CALCULATED HEAVY EQUIPMENT EMISSIONS

Data Assumptions:						
Equipment Type	Diesel Emission Factor (lbs/hr)					
	SOx	NOx	CO	VOC	PM10	
Asphalt Truck	0.143	1.691	0.675	0.183	0.139	
Backhoe	0.182	1.89	0.572	0.291	0.172	
Bulldozer	0.348	4.166	1.794	0.257	0.165	
Concrete Truck	0.454	4.166	1.794	0.304	0.256	
Crane/Cherry Picker	0.143	1.691	0.675	0.183	0.139	
Dump Truck	0.454	4.166	1.794	0.304	0.256	
Flat Bed	0.454	4.166	1.794	0.304	0.256	
Fork Lift	0.143	1.691	0.675	0.183	0.139	
Front End Loader	0.182	1.89	0.572	0.291	0.172	
Motored Grader	0.086	0.713	0.151	0.052	0.061	
Roller/Compactor	0.143	1.691	0.675	0.183	0.139	
Scraper	0.463	3.84	1.257	0.425	0.406	
Note: VOC = Aldehydes and Hydrocarbons						
Source: Table II-7.1, AP-42						
Used Miscellaneous Eqpt. EFs for Crane, Drill Rig, Fork Lift and Roller/Compactor						
Construct Roy City Corporation Culinary Reservoir and Pump House:						
EQUIPMENT TYPE	HOURS OF OPERATION	Diesel Emissions (lbs)				
		SOx	NOx	CO	VOC	PM10
Asphalt Truck	80	14.6	151.2	45.8	23.3	13.8
Backhoe						
Bulldozer						
Concrete Truck						
Crane/Cherry Picker						
Dump Truck	80	6.9	57.0	12.1	4.2	4.9
Flat Bed						
Fork Lift						
Front End Loader						
Motored Grader						
Roller/Compactor	80	6.9	57.0	12.1	4.2	4.9
Scraper						
TOTAL ESTIMATED EMISSIONS (lbs)		21.4	208.2	57.8	27.4	18.6
TOTAL ESTIMATED EMISSIONS (tons)		0.0	0.1	0.0	0.0	0.0

Source of Hours: Discussions with Roy City Corporation, Director of Public Works

Related to conformity with Utah's State Implementation Plan, and therefore the Clean Air Act's General Conformity Rule and 40 CFR 93, the proposed construction is expected to be less than 6 months in duration. Therefore, it does not require a new source review. Fugitive emissions from construction activities should be mitigated according to *Utah Administrative Code, Rule R307-205, Emission Standards: Fugitive Emissions and Fugitive Dust*. Good housekeeping practices should be used to maintain construction opacity at less than 20 percent. Haul roads should be kept wet, and any soil that is deposited on nearby paved roads by construction vehicles should be removed from the

roads and returned to the site or appropriate disposal area. Conformity was determined to exist.

4.1.2 Cumulative Impacts of the Proposed Action

Air emissions would be temporary, only being generated during the construction period. There are no cumulative impacts to air quality associated with the proposed action.

4.1.3 Impacts of the No Action Alternative

There would be no air quality impacts associated with the no action alternative.

4.1.4 Cumulative Impacts of the No Action Alternative

There are no cumulative air quality impacts associated with the no action alternative.

4.2 Solid and Hazardous Wastes

4.2.1 Impacts of the Proposed Action

As stated in Section 1.4, no hazardous wastes would be generated as part of the proposed action. No solid wastes would be generated except for minor amounts of construction debris that would be treated as uncontaminated trash.

It is possible that equipment failure or a spill of fuel, lubricants, or construction-related chemicals could generate solid or hazardous wastes. In such a case, or if excavated soils exhibit suspicious odors or appearance, the following procedures would apply on Hill AFB.

Hill AFB personnel have specified procedures for handling construction-related solid and hazardous wastes in their engineering construction specifications. The procedures are stated in *Section 01000, General Requirements, Part 1, General, Section 1.24, Environmental Protection*. All solid non-hazardous waste is collected and disposed on a daily basis. Samples from suspect wastes are analyzed for hazardous vs. non-hazardous determination. The suspect waste is safely stored while analytical results are pending. Hazardous wastes are stored at sites operated in accordance with the requirements of 40 CFR 265. The regulations require the generator to characterize hazardous wastes with analyses or process knowledge. Hazardous wastes are eventually labeled, transported, treated, and disposed in accordance with federal and state regulations.

4.2.2 Cumulative Impacts of the Proposed Action

Proper handling of solid and hazardous wastes eliminates releases of contaminants to the environment. There are no cumulative solid or hazardous waste impacts associated with the proposed action.

4.2.3 Impacts of the No Action Alternative

With respect to solid and hazardous wastes, the no action alternative has no impacts.

4.2.4 Cumulative Impacts of the No Action Alternative

There are no cumulative solid or hazardous waste impacts associated with the no action alternative.

4.3 Physical Environment

4.3.1 Surface Soils

4.3.1.1 Impacts of the Proposed Action

Near surface soils may be compacted by construction vehicles during the proposed action. Annual winter frost heave activity (from the freezing of normal soil moisture) would later counteract the compaction process.

Construction projects can increase soil erosion. Most of the area of proposed construction is relatively flat and the potential for erosion is therefore small. Hill AFB construction specifications would mitigate any erosion potential that does exist by requiring the contractor to restore the land to its original condition. The area disturbed by excavation would be backfilled and subsequently re-planted, re-seeded, or sodded to prevent soil erosion.

4.3.1.2 Cumulative Impacts of the Proposed Action

There are no cumulative impacts to surface soils associated with the proposed action.

4.3.1.3 Impacts of the No Action Alternative

With respect to surface soils, the no action alternative has no impacts.

4.3.1.4 Cumulative Impacts of the No Action Alternative

There are no cumulative impacts to surface soils associated with the no action alternative.

4.3.2 Groundwater

4.3.2.1 Impacts of the Proposed Action

Water is being withdrawn from the Sunset Formation, which provides drinking water of good quality. With respect to groundwater, the no proposed action has no impacts.

4.3.2.2 Cumulative Impacts of the Proposed Action

There are no cumulative impacts to water quality associated with the proposed action.

4.3.2.3 Impacts of the No Action Alternative

With respect to groundwater, the no action alternative has no impacts.

4.3.2.4 Cumulative Impacts of the No Action Alternative

There are no cumulative impacts to groundwater resources associated with the no action alternative.

4.4 Biological Resources

4.4.1 Impacts of the Proposed Action

As stated in Section 3.4, no species of plants or animals listed as endangered, threatened, or sensitive by state or federal agencies were observed in or around the proposed excavation area. No suitable habitat for any such species is likely to be disturbed by the project.

During excavation, the vegetation of the area would be entirely removed, and any animal species present would be displaced. Following the construction phase, revegetation of portions of the site to prevent erosion may improve those parts of the site, if planted with a diverse mix of native species. Failing to revegetate the area, or planting with a single species of non-native plant, could lead to a long-term degradation of the site, and reduced suitability for wildlife use.

4.4.2 Cumulative Impacts of the Proposed Action

There are no cumulative impacts to biological resources associated with the proposed action. Permanent loss of a small area of native vegetation may have a minor impact upon the suitability of the surrounding area as habitat for a few individuals of some common and widespread species of birds and mammals.

4.4.3 Impacts of the No Action Alternative

With respect to biological resources, the no action alternative has no impacts.

4.4.4 Cumulative Impacts of the No Action Alternative

There are no cumulative impacts to biological resources associated with the no action alternative.

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7.0 REFERENCES

DAQ 00: *State of Utah National Ambient Air Quality Standards, Areas of Non-Attainment and Maintenance (Effective May, 1999)*, Utah Division of Air Quality Website, April, 2000.

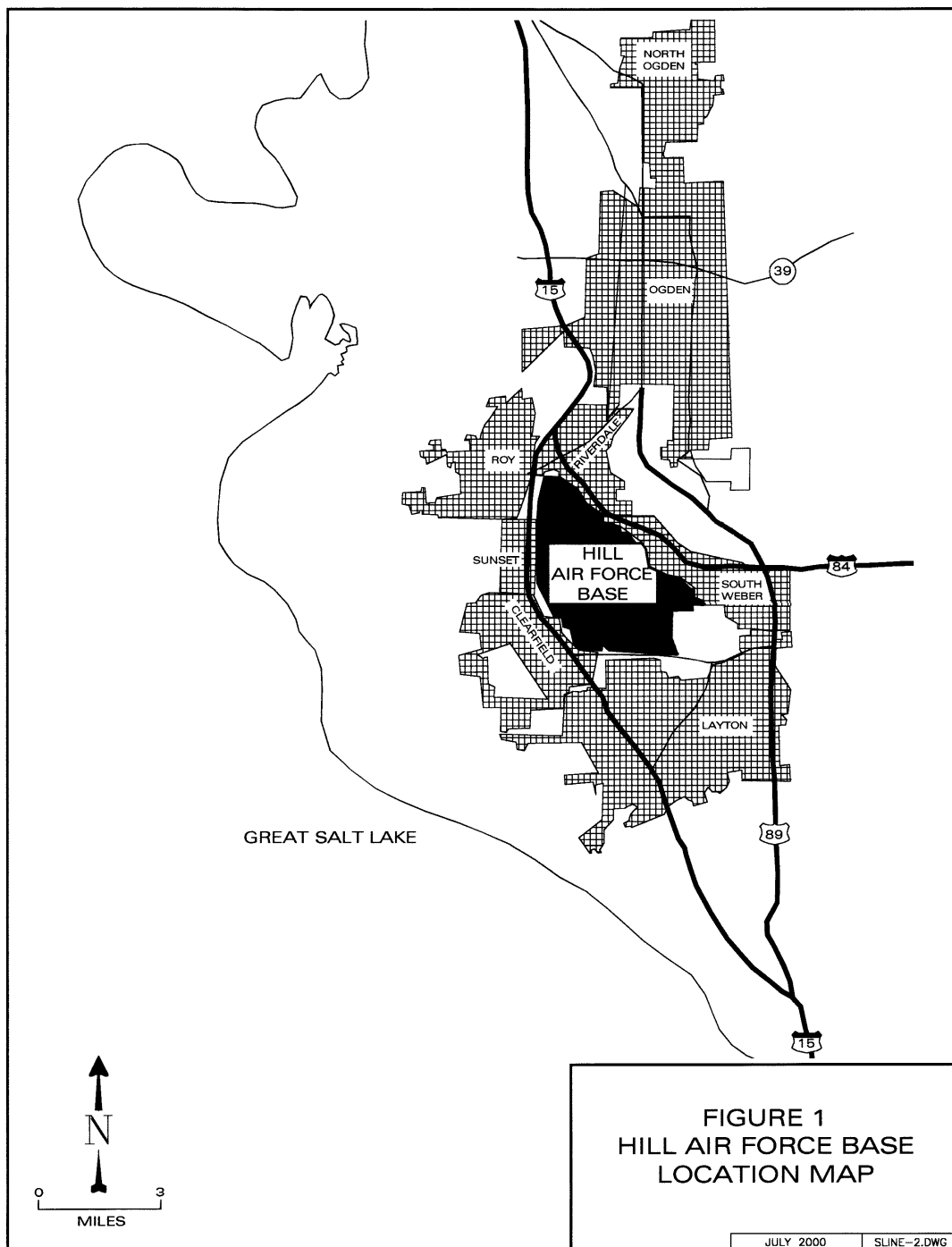
EPA 96: *National Air Pollutant Emission Trends, Procedures Document for 1900-1996*, US Environmental Protection Agency, Page 4-285, 1996.

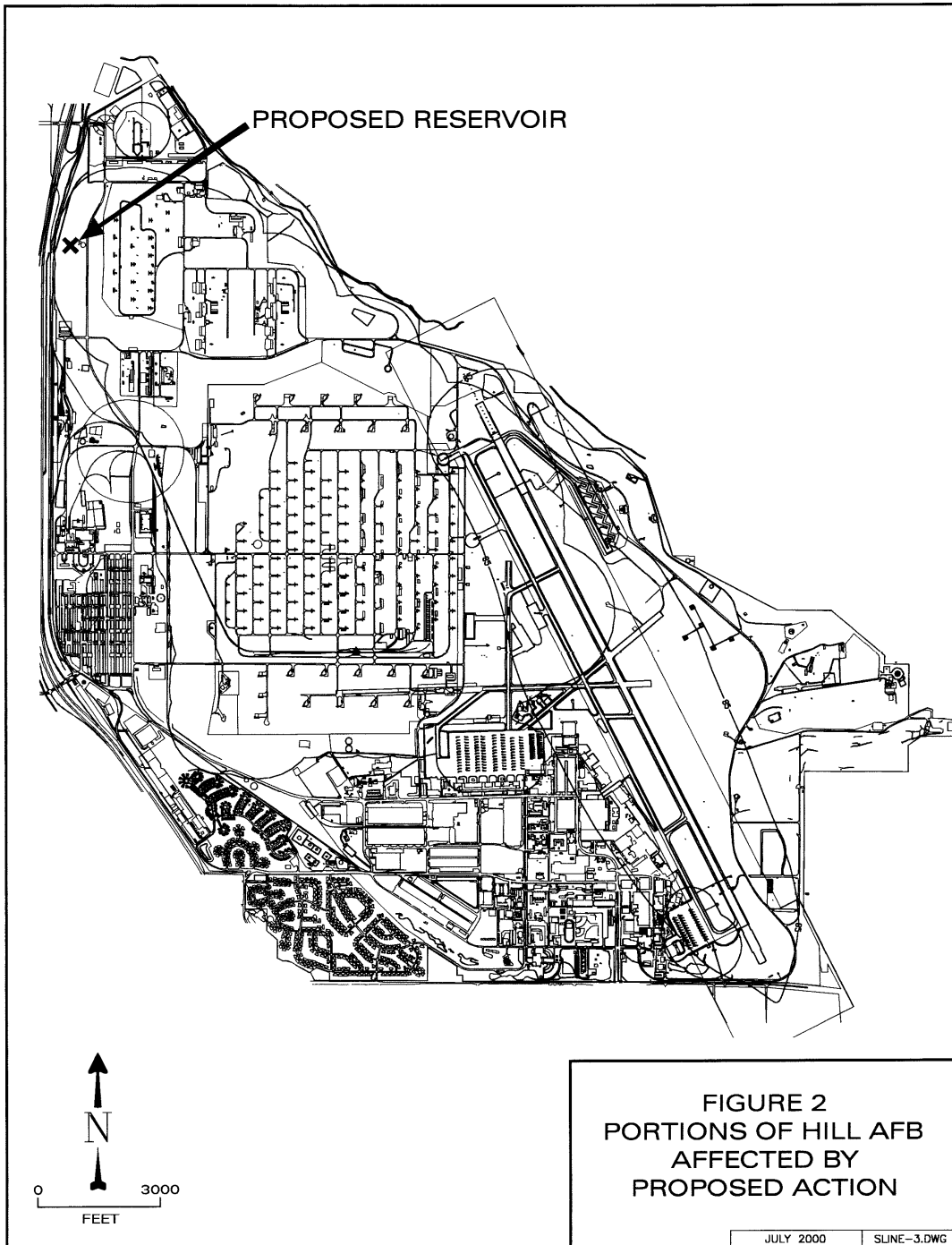
EPA 85: *AP-42, Computation of Air Pollution Emission Factors, Volume I, Stationary Point and Area Sources, and Volume II, Mobile Sources*, US Environmental Protection Agency, 1985.

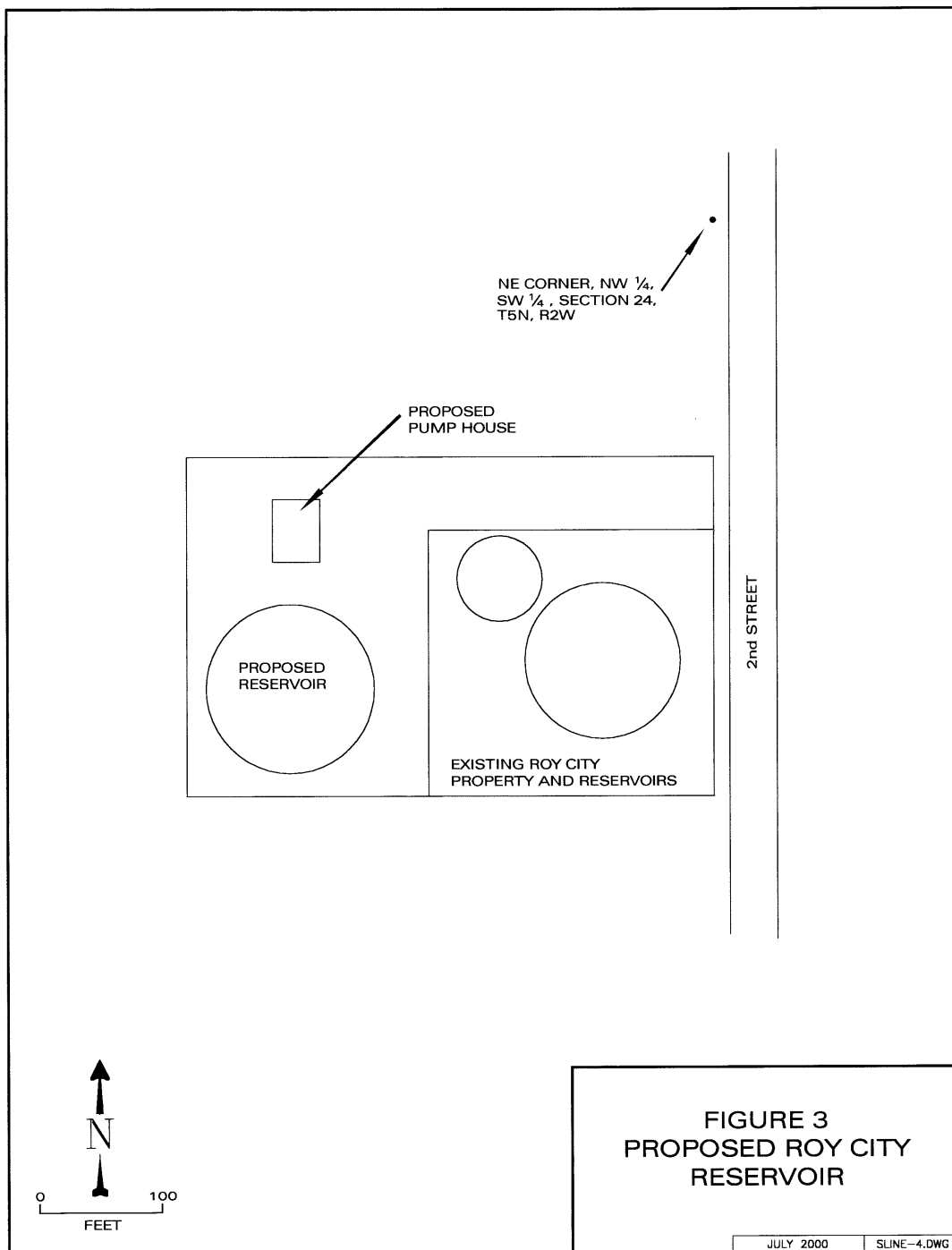
Hansen 96: *Roy City Drinking Water Source Protection Delineation Report for 4800 South Well, 5174 South Well, Hill Air Force Base Well*, Hansen, Allen & Luce, Inc., May, 1996.

Hill AFB: *Construction Specifications, Section 01000, General Requirements, Part I, General, Section 1.24, Environmental Protection*, Hill AFB, UT, current version.

Jones 97: *Culinary Water Master Plan Update for Roy City Corporation*, Jones and Associates Consulting Engineers, May, 1997.







State of Utah
National Ambient Air Quality Standards
Areas of Non-Attainment and Maintenance
(effective 5/99)

FIGURE 4

